

IN THE SPECIFICATION

Please replace the paragraph at page 2, prenumbered lines 7-17, with the following rewritten paragraph:

Conventionally, as shown in FIG. 1, in an image reader apparatus, a manuscript surface 3 of a manuscript 2 which is set on a manuscript stand 1 (a contact glass) is lighted by a cylinder shaped lamp 4 so as to form a line. A reflection light from a reading part 3A forming a line of the manuscript surface 3 lighted so as to form a line is image-formed to an imaging element 6 by ~~[[a]]~~ an image-formation lens 5 which forms one part of a contraction optical system (an image-formation optical system), so that an image of the manuscript 2 is read.

Please replace the paragraph at page 2, prenumbered lines 18-24, with the following rewritten paragraph:

A Xenon pipe is used as the cylinder shaped lamp 4, for example. An irradiation opening part 4A is provided at the Xenon pipe. The reading part 3A of the manuscript surface 3 is directly lighted by a lighting light P1 outgoing through ~~[[a]]~~ an irradiation opening part 4A and lighted by a reflection lighting light P1' reflected by a reflector 7.

Please replace the paragraph at page 8, prenumbered lines 12-19, with the following rewritten paragraph:

Therefore, in a design of the image reader apparatus, although the optical system part arranged inside of the housing is painted black and a layout of the respective optical system parts is devised, it is difficult to eliminate relighting at the reading part by the secondary lighting light. Hence, that causes difficulty for improvement of the quality of reading an image.

Please replace the paragraph at page 29, prenumbered lines 8-16, with the following rewritten paragraph:

The image reader apparatus ~~as claimed in claim 30~~, may further include a mountain part and a valley part which have a triangle cross section and extend in a main scanning direction which the cylinder shaped lamp extends, and a plurality of the mount parts and the valley parts may be provided alternatively in a sub scanning direction perpendicular to the main scanning direction.

Please replace the paragraph at page 44, prenumbered line 20, to page 45, prenumbered line 2, with the following rewritten paragraph:

The reflector 19 is provided so as to face the irradiation opening part ~~[[18A]]~~ 18B. The reflector ~~[[18]]~~ 19 reflects the lighting light from the cylinder shaped lamp 18, so that a reflection lighting light P3 is led from a direction facing a direct lighting light P2, which is directly led from the cylinder shaped lamp 18 to the reading part 28B, to the reading part 28B.

Please replace the paragraph at page 45, prenumbered lines 3-15, with the following rewritten paragraph:

Therefore, the reading part 28B is lighted by the direct lighting light P2 which is irradiated from the irradiation opening part ~~[[18A]]~~ 18B of the cylinder shaped lamp 18 and directly irradiated through the semi-permeable type optical element 21. In addition, the reading part 28B is lighted by a reflection lighting light P3 which is radiated from the irradiation opening part 18B, which is led to the reflector 19 through the semi-permeable type optical element 21, and which is reflected by the reflector 19. That is, the reading part 28B is

lighted from both sides of the sub scanning direction by the corresponding lighting lights P2 and P3.

Please replace the paragraph at page 46, prenumbered lines 2-14, with the following rewritten paragraph:

The turning mirror 22 reflects the diffusion reflection light toward the turning mirror 23. The turning mirror 23 reflects the diffusion reflection light toward the image forming lens 25. An image of the reading part 28B is image formed at the one-dimensional image sensor 26 by the image forming lens 25. The manuscript surface 28A is lighted in the sub scanning direction in order by traveling the cylinder shaped lamp ~~[[28]]~~ 18 traveling in the sub scanning direction and scanning the manuscript surface 28A. As a result of this, an image that is produced by line sequencing can be read out. Normally, image resolution is 400 through 600 DPI (dots/inch).

Please replace the paragraph at page 48, prenumbered line 24, to page 49, prenumbered line 12, with the following rewritten paragraph:

Although it may be possible to relatively reduce the contribution rate at the reading part 28B of the secondary lighting light P5 as the permeability rate of the semi-permeable type optical element 21 is made lower, the light amount required for reading the image of the manuscript ~~[[29]]~~ 28 is also reduced so that the S/N ratio is bad and noise is increased. Hence, the permeability rate of the semi-permeable type optical element 21 is decided based on consideration of the light amount required for reading the image of the manuscript and change of the manuscript density, and of the total sum of lighting light of the primary lighting lights P2 and P3 and the secondary lighting light P5.

Please replace the paragraph at page 51, prenumbered lines 15-24, with the following rewritten paragraph:

However, as the separation distance between the cylinder shaped lamp 18 and the semi-permeable type optical element 21 becomes longer, the lighting optical system is made large so that it is difficult to make the lighting optical system compact. Furthermore, the distance between the cylinder shaped lamp 18 and the manuscript surface ~~[[28B]]~~ 28A is longer so that the light amount of the lighting light reaching the manuscript surface ~~[[28B]]~~ 28A is reduced and consumption of electric power and the cost are high.

Please replace the paragraph at page 55, prenumbered lines 8-14, with the following rewritten paragraph:

The diffusion light which is diffused at the reading part ~~28B~~ and returns to the irradiation opening part ~~[[18A]]~~ 18B of the cylinder shaped lamp 18 through the reflector 19 is smaller than the diffusion light which is diffused at the reading part ~~28B~~ and directly returns to the irradiation opening part ~~[[18A]]~~ 18B.

Please replace the paragraph at page 60, prenumbered lines 18-22, with the following rewritten paragraph:

After the position against the cylinder shaped lamp 18 of the semi-permeable type optical element 21 is adjusted, engaging grooves 33 of the fixing pipes 34 are interfit to the support pipes 32, so that the position is stably fix-supported.

Please replace the paragraph at page 72, prenumbered lines 3-17, with the following rewritten paragraph:

The width of the whole permeable area 52A in the sub scanning direction is determined by the effective diameter of the image forming lens 25 and the focus distance to the manuscript surface 28A. Assuming that the effective diameter of the image forming lens ~~[[28]] 29~~ is ϕ , the focus distance is $L1$, and the distance between the image forming lens ~~[[28]] 29~~ and the optical element 52 is $L2$, the width W of the whole permeable area 52A in a sub scanning direction is satisfied with a formula of $W=\phi \times L2/L1$ as an ideal. However, as a matter of fact, three times of the above-mentioned width W is necessary because there are errors in the image forming lens 25 of the image reader apparatus, the arranging position error of the image sensor 26, and others.

Please replace the paragraph at page 73, prenumbered lines 3-19, with the following rewritten paragraph:

Furthermore, as described in the third embodiment, if the permeability rate of the semi-permeable area 52B of the optical element 52 is set corresponding to the emission light strength distribution in the direction which the cylinder shaped lamp ~~[[28]] 18~~ extends, it is possible to achieve a uniform amount of the lighting light on a manuscript in the direction which the cylinder shaped lamp 28 extends, so that it is possible to obtain an image having a higher quality. For example, the permeability rate of the semi-permeable area 52B of the optical element 52 is set small at a position where the emission light strength distribution is high, and the permeability rate of the semi-permeable area 52B of the optical element 52 is set large at a position where the emission light strength distribution is low.

Please replace the paragraph at page 73, prenumbered line 20, to page 74, prenumbered line 2, with the following rewritten paragraph:

In addition, as described in the eighth embodiment, in a case where the optical element 52 has a color having a supplemental color relationship with a color of the emission of light of the cylinder shaped lamp ~~[[28]]~~ 18, the lighting light which lights the manuscript surface has a white color. In a case of a full color image reader apparatus, it is possible to obtain an image having a higher quality.

Please replace the paragraph at page 74, prenumbered lines 4-14, with the following rewritten paragraph:

In the eleventh embodiment, as shown in FIG. 20, the manuscript stand 27 (contact glass 27') is formed as the optical element 52 and the semi-permeable area 52B is formed at the surface of the opposite side to the surface of the contact glass ~~[[27'']]~~ 27' facing the manuscript surface 28A. The remaining structure of the eleventh embodiment is substantially the same as the tenth embodiment. Hence, parts that are the same as the parts of the tenth embodiment are given the same reference numerals, and explanation thereof is omitted.

Please replace the paragraph at page 76, prenumbered line 21, to page 77, prenumbered line 4, with the following rewritten paragraph:

In the thirteenth embodiment, as shown in FIG. 22, in the optical element 52, the permeability rate of the semi-permeable area 52B' at a side of the reflector 19 by which a part of the lighting light from the cylinder shaped lamp 18 is reflected to the manuscript surface ~~[[18A]]~~ 28A so that the manuscript surface 18A is lighted, is set to be higher than the permeability rate of the semi-permeable area 52B at a side of the cylinder shaped lamp 18.

Please replace the paragraph at page 93, prenumbered line 15, to page 94, prenumbered line 7, with the following rewritten paragraph:

In the twentieth embodiment, as shown in FIG. 32, the optical element 56 having the diffusion reflection surface 56A by which the reflection light reflected by the manuscript surface 28A is diffusion-reflected to the manuscript surface 28A, is provided at a position where the lighting light leading from the cylinder shaped lamp 18 to the manuscript surface 28A is not blocked and the optical path of the image forming optical system is not blocked, so as to be separated from the contact glass 27'. In addition, the optical element ~~[[56]]~~ 56' having the diffusion reflection surface 56A' by which the reflection light reflected by the manuscript surface 28A is diffusion-reflected, is provided at a position where the lighting light leading from the cylinder shaped lamp 18 to the manuscript surface 28A is not blocked and at the side opposite to the surface of the contact glass 27' facing the manuscript surface 28A.

Please replace the paragraph at page 94, prenumbered line 24, to page 95, prenumbered line 6, with the following rewritten paragraph:

In the 21st embodiment, as shown in FIG. 33, the opening angle θ of the irradiation opening part 18B of the cylinder shaped lamp 18 is formed so as to be bigger than the opening angle ~~[[θ']]~~ θ of the irradiation opening part 18B of the cylinder shaped lamp 18 shown in FIG. 27, for example. As a result of this, the reading part in the sub scanning direction can be lighted widely.

Please replace the paragraph at page 95, prenumbered lines 14-24, with the following rewritten paragraph:

As described above, in the 21st embodiment, the opening angle θ of the irradiation opening part 18B of the cylinder shaped lamp 18 is formed so as to be bigger than the opening angle $[\theta']$ θ of the irradiation opening part 18B of the cylinder shaped lamp 18, so that the reading part in the sub scanning direction can be lighted widely. However, it is also possible for the reading part in the sub scanning direction to be lighted widely by making the position against the manuscript surface 28A of the reflector 19 and an area of the reflector 19 large.